Shoulder Harness Attach Prompts Mandatory Plans Change

Ever since my first ride in an Eze I felt uncomfortable with the wide shoulder harness spacing. I had to keep the straps tight to keep the thing on my shoulders and I felt like I was tied to a tree. Needless to say, that's not a nice thing to do to a passenger either.

In the July 95 Cozy Newsletter the issue is addressed by Nat Puffer through a **Mandatory** plans change. Uli Wolter, Cosy Europe newsletter editor and designer, related a meeting with a European seat belt company. They had run tests and determined the correct spacing for shoulder belt attach point separation should be between 17 cm and 22 cm. That is 6.69" to 8.66". If the belt attach points are farther apart than 8.66" it is possible for an occupant to slide out of the harness during a crash.

The Cozy plans call for 11.5" separation, over 2.8" greater than the maximum recommended. The Long-EZ plans call for a similar distance. Nat requires the attach points be moved to attain the 8.6" maximum distance. The base of the head rest structure will have to be notched to allow the triangular harness brackets clearance at the new closer separation.

The Eze/EZ birds have a different problem in the back seat. Harness belts are fastened to extender plates, SH-1. These might be lengthened to get the ends 8.6" apart but would probably buckle during a crash.

An alternate method I built into my Long-EZ calls for no structural modification. I have a 6061-T6 aluminum angle 1/4 x 1.5 x 1.5 connecting the two stock shoulder belt attach bolts. The front seat angle is located inside the triangular box area aft of the pilot seat bulkhead that spans the distance between the longerons. Centered and bolted on the angle is an inertia reel harness taken from a Cessna. It has worked well for 1700 hours and allows free movement until a high "G" load is applied. I've never crash tested it but it is a certified assembly and I feel it will work. One can slide the angle and reel into the cavity through the headrest openings. No cutting is needed.

The rear seat has a similar mount with the angle turned parallel to the faces of the center spar. An inertia reel harness is mounted on the center of the angle allowing the back seater freedom of movement unless a high "G" load is experienced. A draw back is that both pilot and passenger might fall out through the canopy during prolonged inverted flight.

That situation is unlikely to happen with me. I don't do aerobatics as I find it too difficult to clean my vomit off the canopy.

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